REMARKS/ARGUMENTS

This paper is being provided in response to the June 14, 2010 Office Action for the above-referenced application. In this response, Applicant has withdrawn Claims 2, 5-9, 11, 14-18, 20, and 23-27 and amended Claims 1, 4, 10, 12, 13, 19 and 22 in order to clarify that which Applicant deems to be the claimed invention. Applicant respectfully submits that the amendments to the claims are all supported by the originally filed application.

As requested in the Office Action, Applicant affirms the election of Group 2, Claims 4, 13, and 22.

In response to the objections to the specification regarding the title and use of an embedded URL, the specification has been amended herein in accordance with remarks set forth in the Office Action. Accordingly, Applicant requests that the objections be reconsidered and withdrawn.

The rejection of Claims 1-20 under 35 U.S.C. 112, second paragraph, as being indefinite is hereby traversed and reconsideration thereof is respectfully requested.

Applicant has amended Claims 1, 10 and 19 to clarify that the recited reference retention times are assigned to entities. Applicant has amended Claims 4, 13 and 22 to clarify recitation of the recited look-up table in accordance with remarks set forth in the Office Action. Furthermore, Applicant has amended Claims 10, 12 and 13 to remove use of "means for" language and that Claims 10, 12 and 13, as amended herein, now recite language directed to a system including a computer programmed to perform processing.

It is respectfully submitted that, based on the foregoing, Claims 1-20 are not indefinite and clearly set forth that which Applicant regards as the claimed invention.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 10, 12 and 13 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is hereby traversed and reconsideration thereof is respectfully requested.

As noted above, Claims 10, 12 and 13 have been amended to remove use of "means for" language and that Claims 10, 12 and 13 now recite language directed to a system including a computer programmed to perform processing. It is respectfully submitted that Claims 10, 12 and 13 recite a system including a computer that is programmed to perform processing. The processing steps are similar to those as recited in Claims 1 and 19 as originally filed and also similar to functionality performed by the means as previously recited in originally filed Claim 10. Furthermore, the originally filed application describes, for example, with reference to Figure 1 and description beginning with paragraph 42, that a computer may be programmed to perform entity tracking operations as described in the application. It is additionally noted that, for example, Figure 2 and paragraphs 51-53, describe choosing subsets based on intensity.

For at least the foregoing reasons, it is respectfully submitted that Claims 10, 12 and 13 are supported by the originally filed application in accordance with the requirements of 35 U.S.C. 112, first paragraph.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 1, 3, 4, 10, 12 and 13 under 35 U.S.C. 101 as being directed to non-statutory subject matter is hereby traversed and reconsideration thereof is respectfully requested.

In connection with Claims 1, 3, and 4, Claim 1 has been amended herein, is directed to a computer implemented method, and is thus performed by a computer. In connection with Claims 10, 13 and 14, the claims have been amended herein to recite language directed to a system including a computer programmed to perform processing. Thus, Claims 10, 13 and 14 are not directed to software, per se.

In connection with the rejection of Claims 1, 3, and 4, the Office Action at paragraphs numbered 19 and 20 indicates that Claims 1, 3 and 4 are directed to unpatentable subject matter because there is no machine tied to the method along with no physical transformation produced. Furthermore, the Office Action states that the critical steps of the method must be tied to a machine or apparatus or the method must transform a physical article into another state or thing. Thus, it appears that the Office Action is contending the machine or transformation test must be met in order for the claims to be directed to statutory subject matter under 35 U.S.C. 101. Applicant notes that, in light of the Supreme Court decision of *Bilski v. Kappos*, 561, U.S. ___ (2010), the machine or transformation test as set forth in the Office Action is not the sole test for determining whether an invention is a patent-eligible process under 35 U.S.C. 101. Thus, although the machine or transformation test is a useful and important clue and investigative tool for determining whether some claimed inventions are processes under 35 U.S.C. 101, there is no requirement that the method be tied to a machine or produce a physical transformation in order to be directed to statutory subject matter under 35 U.S.C. 101.

It is respectfully submitted that Claims 1, 3, 4, 10, 12 and 13, as amended herein, are directed to patentable subject matter under 35 U.S.C. 101. Independent Claim 1 is directed to a computer implemented method. Independent Claim 10 is directed to a system including a computer programmed to perform processing. Thus, it is respectfully submitted that Claims 1 and 10, and claims that depend therefrom, are not directed to laws of nature, physical phenomena, or merely abstract ideas and are directed to patentable subject matter in accordance with 35 U.S.C. 101.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 1, 3, 4, 10, 12, 13, 19, 21 and 22 under 35 U.S.C. 102(b) and (e) as being anticipated by Higgs (US Patent No. 5,885,841, hereinafter "Higgs") is hereby traversed and reconsideration thereof is respectfully requested.

Claim 1, as amended herein, recites a computer implemented method for tracking entities in an LC/MS system, comprising: choosing a subset of entities from a first injection; choosing a subset of entities from a second injection; comparing the entities chosen from the first injection to those chosen from the second injection; identifying entities chosen from the first injection that match entities chosen from the second injection; constructing a retention time map based on the matching entities of the subsets; assigning, based on the retention time map, reference retention times to a portion of entities, said portion including the subsets and entities of the first injection and the second injection other than those in said subsets; and tracking entities through the first and second injections using the reference retention times and mass values. Claims 3 and 4 depend from Claim 1.

Claim 10, as amended herein, recites a system for tracking entities in an LC/MS system, the system comprising a computer programmed to perform processing, said processing comprising: choosing a subset of entities from a first injection; choosing a subset of entities from a second injection; comparing the entities chosen from the first injection to those chosen from the second injection; identifying entities chosen from the first injection that match entities chosen from the second injection; constructing a retention time map based on the matching entities of the subsets; assigning, based on the retention time map, reference retention times to a portion of entities, said portion including the subsets and entities of the first injection and the second injection other than those in said subsets; and tracking entities through the first and second injections using the retention time map and mass values. Claims 12 and 13 depend from Claim 10.

Claim 19, as amended herein, recites a system for tracking entities in an LC/MS system, comprising: a liquid chromatograph into which the sample is injected to separate entities in the sample, and to determine a retention time associated with each of the one or more entities; a mass spectrometer into which the entities are input to determine a mass of each of the one or more entities; and a computer programmed for: choosing, based on intensity, a subset of entities from a first injection and a subset of entities from a second injection; comparing the entities chosen from the first and second injections; identifying matching entities in the first and second injections; constructing a retention time map based on the matching entities; assigning reference

retention times based on the retention time map; and tracking the entities using the retention time map and mass values. Claims 21 and 22 depend from Claim 19.

Higgs discloses a system for analyzing a protein sample, comprising a reactor vessel, a chromatographic column, a mass spectrometer, and a computer system. The reactor vessel comprises an enzyme activity capable of digesting the protein sample in order to provide a plurality of peptide digests, an inlet port for receiving the protein to be digested, and an exit port for discharging the peptide digests. The chromatographic column comprises a chromatographic medium capable of chromatographically fractionating the peptide digests as the peptide digests are eluted through the column, wherein the chromatographic column comprises an inlet port for receiving the peptide digests, said inlet port being in flow communication with the exit port of the reactor vessel, and wherein the chromatographic column comprises an exit port for discharging an effluent comprising the chromatographically fractionated peptide digests. The mass spectrometer is capable of generating a mass spectroscopic data set comprising data from which a first plurality of selective ion chromatograms for the fractionated peptide digests can be generated. The mass spectrometer has an inlet port for receiving the chromatographically fractionated peptide digests. The inlet port is in flow communication with the exit port of the chromatographic column. The computer system is operationally coupled to the mass spectrometer such that the computer system is capable of analyzing the mass spectroscopic data set. The computer system comprises programming enabling the computer system to analyze protein samples using selective ion chromatograms derived from the mass spectroscopic data set. (See Abstract).

As noted above, Claim 1, as amended herein, recites a computer implemented method for tracking entities in an LC/MS system. Subsets of entities from a first injection and a second injection are chosen. The entities chosen from the first injection are compared to those chosen from the second injection. Entities chosen from the first injection that match entities chosen from the second injection are identified. A retention time map based on the matching entities of the subsets is constructed. Based on the retention time map, reference retention times are assigned to a portion of entities. The portion includes the subsets and entities from the first injection and the second injection other than those in the subsets. Entities are tracked through the

first and second injections using the reference retention times and mass values. For reasons set forth below, it is respectfully submitted that Higgs does not disclose or fairly suggest amended Claim 1. In particular, it is respectfully submitted that Higgs does not disclose or suggest at least the above-noted features of choosing subsets of two injections, constructing a retention time map based on the matching entities of the subsets, and assigning, based on the retention time map, reference retention times to a portion of entities including the subsets and entities first injection and the second injection other than those in the subsets.

With respect to Claim 1 prior to amendment herein, pages 7-8 of the Office Action cite to Higgs' disclosure of locating and matching chromatographic peaks as support for disclosing the recited comparing and identifying steps of Claim 1. The Office Action also cites to Higgs' disclosure of identifying retention time intervals for the peaks as support for disclosing the recited constructing step of Claim 1. The Office Action additionally cites to Higgs' disclosure of aligning retention times as support for disclosing the recited assigning step of Claim 1. (See claims of Higgs as noted on pages 7-8 of the Office Action). The reference to Higgs' claims as noted in the Office Action as support for disclosing features of Claim 1 appears to be directed to matching peaks but appear silent regarding any disclosure or suggestion of using retention times of matched entities from subsets to assign reference retention times to the subsets and to entities other than those in the subsets, as recited in Claim 1. Higgs, neither in the claims nor elsewhere in the reference, discloses or fairly suggests constructing a retention time map based on matching entities of the subsets and assigning, based on the retention time map, reference retention times to the subsets and entities from the first and second injections other than those of the subsets, as set forth in Claim 1.

For at least the foregoing reasons, it is respectfully submitted that Higgs does not disclose or fairly suggest Claim 1, and claims that depend therefrom. Claim 10 recites features similar to those of Claim 1 which, as pointed out above, are neither disclosed nor suggested by Higgs. Thus, it is respectfully submitted that Claim 10, and claims that depend therefrom, are also neither disclosed nor suggested by Higgs for reasons similar to those set forth above regarding Claim 1.

Claim 19, as amended herein, recites a system for tracking entities in an LC/MS system, comprising a liquid chromatograph, a mass spectrometer and a computer. The computer is programmed for: choosing, based on intensity, a subset of entities from a first injection and a subset of entities from a second injection. It is respectfully submitted that Claim 19 is neither disclosed nor fairly suggested by Higgs in that Higgs does not disclose or fairly suggest at least the foregoing features of Claim 19.
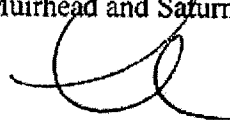
Page 8 of the Office Action contends that Higgs' Claim 37, steps a-d, and Claims 42 and 43 disclose the choosing steps of Claim 1, prior to amendment herein. The foregoing citation of Higgs relates to digesting samples, fractionating peptides, and performing mass spectroscopic analysis. The fractionating includes chromatographically fractionating peptides. However, Higgs appears silent regarding programming a computer to choose subsets of entities based on intensity, as recited in Claim 19.

For at least the foregoing reasons, it is respectfully submitted that Higgs does not disclose or fairly suggest Claim 19, and claims that depend therefrom.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8604.

Respectfully submitted,
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